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EXAMINER	
FOX, BRYAN J	

ART UNIT	PAPER NUMBER
2617	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/516,641	HAMALAINEN ET AL.	
	Examiner	Art Unit	
	Bryan J. Fox	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5, 6, 8-13, 24, 25 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Hamalainen (WO 01/31958 A1).

Regarding **claim 1**, Hamalainen discloses a system where a criteria for a mobile station triggers the employment of a slotted mode and measurements on neighboring base stations includes the base station seems to be not responding to power control commands asking for more downlink power and the serving base station repeatedly asks for more uplink power but the mobile already uses the maximal allowed uplink power (see page 7, line 12 – page 8, line 12), or interference is high, or higher than an estimated value (see page 10, line 26 – page 11, line 8), which reads on the claimed, "method for controlling interfrequency handovers of a mobile station, the mobile station comprising a continuous communication mode and a combined slotted communication mode and measurement mode, the method comprising the steps of: changing the operation of the mobile station in to the combined slotted communication mode and measurement mode for preparing an interfrequency handover, if at least a criterion specifying that a quality of a downlink signal relating to a channel on which communication takes place between the mobile station and a mobile communication

system in the continuous communication mode is worse than a quality represented by a first target value, is fulfilled, characterized in that the first target value depends on a second target value, the second target value being related to an outer loop power control of a transmission power of the downlink signal."

Regarding **claim 2**, Hamalainen discloses a criteria for a mobile station triggers the employment of a slotted mode and measurements on neighboring base stations includes the base station seems to be not responding to power control commands asking for more downlink power and the serving base station repeatedly asks for more uplink power but the mobile already uses the maximal allowed uplink power (see page 7, line 12 – page 8, line 12), which reads on the claimed, "updating the first target value at first time instants of those time instants at which the second target value is updated by the power control manner of the transmission power," wherein checking to see if the base station is not responding to power control commands reads on updating by the power control manner of the transmission power.

Regarding **claim 5**, Hamalainen discloses that one of the criteria could be the non-orthogonal narrowband neighboring channel interference obtained from measurements on own channel is high (see page 10, lines 26-32), which reads on the claimed, "the first target value is equal to the second target value."

Regarding **claim 6**, Hamalainen discloses one criteria could be the total non-orthogonal narrowband interference is remarkably higher than an estimated co-channel non-orthogonal interference (see page 11, lines 1-8), which reads on the claimed, "the first target value corresponds to a worse quality than the second target value," wherein

the first quality is the non-orthogonal narrowband interference and the second value is the estimated co-channel non-orthogonal interference."

Regarding **claim 8**, Hamalainen discloses that the signal to interference ratio is measured over a period long enough to account for transmission errors but not too long to introduce a delay (see page 7, lines 24-35), which reads on the claimed, "the criterion is to be fulfilled for a certain predetermined time period."

Regarding **claim 9**, Hamalainen discloses that the mobile station can estimate the amount of non-orthogonal narrowband interference coming from transmissions on neighboring channels (see page 10, lines 15-24), which reads on the claimed, "estimating adjacent channel interference on the channel on which communication takes place in the continuous communication mode."

Regarding **claim 10**, Hamalainen discloses that the mobile station can estimate the amount of non-orthogonal narrowband interference coming from transmissions on neighboring channels (see page 10, lines 15-24), which reads on the claimed, "said adjacent channel interference is estimated, if the determined value for the quality represented by a first target value is below a predetermined value."

Regarding **claim 11**, Hamalainen discloses that slotted mode measurements on neighboring frequencies (see page 8, lines 3-8), which reads on the claimed, "measuring interference on an adjacent channel in the combined slotted communication and measurement mode."

Regarding **claim 12**, Hamalainen discloses various criteria, or measurements, are needed to trigger a handover (see, e.g. page7, lines 8-35), which reads on the

claimed, "performing an interfrequency handover to a second channel, and after entering a continuous mode in the second channel, inhibiting a further interfrequency handover for a certain second predetermined time period," wherein the second period of time is the minimum amount of time required to make the necessary measurements.

Regarding **claim 13**, Hamalainen discloses making preparatory measurements for the interfrequency handover in slotted mode (see figure 6), which reads on the claimed, "performing preparatory measurements for an interfrequency handover in the combined slotted communication mode."

Regarding **claim 24**, Hamalainen discloses a system where a criteria for a mobile station triggers the employment of a slotted mode and measurements on neighboring base stations includes the base station seems to be not responding to power control commands asking for more downlink power and the serving base station repeatedly asks for more uplink power but the mobile already uses the maximal allowed uplink power (see page 7, line 12 – page 8, line 12), or if interference is high, or higher than an estimated value (see page 10, line 26 – page 11, line 8), which reads on the claimed, "method for controlling an interfrequency handover of a mobile station, the mobile station comprising a continuous communication mode, the method comprising the steps of: determining a value for a quality factor for a received downlink signal, characterized in that, said interfrequency handover comprises a blind interfrequency handover, and the method further comprises the steps of: comparing the determined quality factor value to a first target value for performing the blind interfrequency handover, comparing the determined quality factor value to a second target value, and

generating power control commands based on the comparison, the first target value being arranged to depend on a second target value and the second value being arranged to relate to an outer loop power control of a transmission power of the downlink signal."

Regarding **claim 25**, Hamalainen discloses a system where a criteria for a mobile station triggers the employment of a slotted mode and measurements on neighboring base stations includes the base station seems to be not responding to power control commands asking for more downlink power and the serving base station repeatedly asks for more uplink power but the mobile already uses the maximal allowed uplink power (see page 7, line 12 – page 8, line 12), or if interference is high, or higher than an estimated value (see page 10, line 26 – page 11, line 8), which reads on the claimed, "mobile station arranged to contain a continuous communication mode and a combined slotted communication and measurement mode, and the mobile station comprising means for determining a value for a quality factor for a received downlink signal, means for controlling the communication mode of the mobile station, characterized in that the mobile station further comprises means for controlling interfrequency handovers, said means for controlling interfrequency handover being arranged to compare the determined quality factor value to a first target value for performing the interfrequency handover." The ability to ask for more power (see page 7, lines 8-35) reads on the claimed, "downlink power control means arranged to compare the determined quality factor value to a second target value and to generate power control commands based on the comparison, the first target value being arranged to

depend on the second target value and the second value being arranged to relate to an outer loop power control of a transmission power of the downlink signal."

Regarding **claim 27**, Hamalainen discloses a system where a criteria for a mobile station triggers the employment of a slotted mode and measurements on neighboring base stations includes the base station seems to be not responding to power control commands asking for more downlink power and the serving base station repeatedly asks for more uplink power but the mobile already uses the maximal allowed uplink power (see page 7, line 12 – page 8, line 12), or if interference is high, or higher than an estimated value (see page 10, line 26 – page 11, line 8), which reads on the claimed, "mobile station arranged to contain a continuous communication mode, the mobile station comprising means for determining a value for a quality factor for a received downlink signal, characterized in that the mobile station further comprises means for controlling blind interfrequency handovers, said means for controlling blind interfrequency handover being arranged to compare the determined quality factor value to a first target value for performing the blind interfrequency handover." The ability to ask for more power (see page 7, lines 8-35) reads on the claimed, "downlink power control means arranged to compare the determined quality factor value to a second target value and to generate power control commands based on the comparison, the first target value being arranged to depend on the second target value and the second value being arranged to relate to an outer loop power control of a transmission power of the downlink signal."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 3, 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamalainen in view of Tiedmann, Jr. et al (US 20020126739A1).

Regarding **claim 3**, Hamalainen fails to disclose that the first target value is updated for every radio frame.

In a similar field of endeavor, Tiedmann, Jr. et al disclose that the target energy level in the power control loop is updated every frame (see paragraph 45), which reads on the claimed, "the first target value is updated for every radio frame."

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Hamalainen with Tiedmann, Jr. et al to include the above updating the updating the target value every frame in order to keep the link at the optimum power level while minimizing interference in the system.

Regarding **claim 4**, Hamalainen fails to disclose that the first target value is updated for every interleaving period.

In a similar field of endeavor, Tiedmann, Jr. et al disclose that the target energy level in the power control loop is updated every frame (see paragraph 45), which reads on the claimed, "the first target value is updated for every interleaving period," wherein the interleaving period is longer than a frame.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Hamalainen with Tiedmann, Jr. et al to include the above updating the updating the target value every frame in order to keep the link at the optimum power level while minimizing interference in the system.

Regarding **claim 7**, Hamalainen fails to disclose that the value for the quality represented by a first target value is determined for every time slot.

In a similar field of endeavor, Tiedmann, Jr. et al disclose that the target energy level in the power control loop is updated every frame (see paragraph 45), which reads on the claimed, "the value for the quality represented by a first target value is determined for every time slot."

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Hamalainen with Tiedmann, Jr. et al to include the above updating the updating the target value every frame in order to keep the link at the optimum power level while minimizing interference in the system.

Claims 14-22 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamalainen in view of Wakizaka (US006081714A).

Regarding **claim 14**, Hamalainen fails to expressly disclose synchronizing the mobile station with at least one base station before selection of a target frequency and/or the target base stations for the interfrequency handover.

In a similar field of endeavor, Wakizaka discloses when the field of strength of the pilot signal from this base station drops below the threshold level, the mobile station transmits a handoff request message to the base station, then synchronizes to the common frequency and sends a second handoff request message to a number of base stations (see column 3, lines 9-54), which reads on the claimed, "synchronizing the mobile station with at least one base station before selection of a target frequency and/or the target base station(s) for the interfrequency handover."

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Hamalainen with Wakizaka to include the above synchronization in order to minimize errors and the need for retransmission.

Regarding **claim 15**, Hamalainen fails to expressly disclose sending a request for the interfrequency handover to the cellular radio from the mobile station, and wherein the step of synchronization is performed after sending the request.

In a similar field of endeavor, Wakizaka discloses when the field of strength of the pilot signal from this base station drops below the threshold level, the mobile station transmits a handoff request message to the base station, then synchronizes to the common frequency and sends a second handoff request message to a number of base

stations (see column 3, lines 9-54), which reads on the claimed, "sending a request for the interfrequency handover to the cellular radio from the mobile station, and wherein the step of synchronization is performed after sending the request."

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Hamalainen with Wakizaka to include the above synchronization in order to minimize errors and the need for retransmission.

Regarding **claim 16**, Hamalainen fails to disclose triggering, based on said preparatory measurements, the synchronization of the mobile station with the at least one base station.

In a similar field of endeavor, Wakizaka discloses the synchronization on a common channel if the field strength of the pilot signal from the original base station drops below the threshold level (see column 3, lines 9-54), which reads on the claimed, "triggering, based on said preparatory measurements, the synchronization of the mobile station with the at least one base station."

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Hamalainen with Wakizaka to include the above synchronization in order to minimize errors and the need for retransmission.

Regarding **claim 17**, Hamalainen fails to disclose that the mobile station is synchronized in at least one available target frequency with each base station relating to which said preparatory measurements are made.

In a similar field of endeavor, Wakizaka discloses the synchronization on a common channel if the field strength of the pilot signal from the original base station

drops below the threshold level (see column 3, lines 9-54), which reads on the claimed, "the mobile station is synchronized in at least one available target frequency with each base station relating to which said preparatory measurements are made."

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Hamalainen with Wakizaka to include the above synchronization in order to minimize errors and the need for retransmission.

Regarding **claim 18**, Hamalainen fails to disclose the mobile station is synchronized in at least one available target frequency with at least two base stations.

In a similar field of endeavor, Wakizaka discloses the mobile station synchronizes itself to a common frequency and sends a second handoff request that all base stations receive (see column 3, lines 9-54), which reads on the claimed, "the mobile station is synchronized in at least one available target frequency with at least two base stations."

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Hamalainen with Wakizaka to include the above synchronization in order to minimize errors and the need for retransmission.

Regarding **claim 19**, Hamalainen fails to disclose the at least two base stations belong to the active set of the mobile station.

In a similar field of endeavor, Wakizaka discloses the mobile station synchronizes itself to a common frequency and sends a second handoff request that all base stations receive (see column 3, lines 9-54), which reads on the claimed, "the at

least two base stations belong to the active set of the mobile station," wherein since all stations are included, the active set must be included.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Hamalainen with Wakizaka to include the above synchronization in order to minimize errors and the need for retransmission.

Regarding **claim 20**, Hamalainen fails to disclose that the synchronization is performed with all base stations belonging to the active set of the mobile station.

In a similar field of endeavor, Wakizaka discloses the mobile station synchronizes itself to a common frequency and sends a second handoff request that all base stations receive (see column 3, lines 9-54), which reads on the claimed, "the synchronization is performed with all base stations belonging to the active set of the mobile station."

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Hamalainen with Wakizaka to include the above synchronization in order to minimize errors and the need for retransmission.

Regarding **claim 21**, Hamalainen fails to disclose performing the interfrequency handover to all base stations belonging to the active set of the mobile station.

In a similar field of endeavor, Wakizaka discloses the mobile station synchronizes itself to a common frequency and sends a second handoff request that all base stations receive (see column 3, lines 9-54), which reads on the claimed, "performing the interfrequency handover to all base stations belonging to the active set of the mobile station."

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Hamalainen with Wakizaka to include the above synchronization in order to minimize errors and the need for retransmission.

Regarding **claim 22**, Hamalainen fails to disclose performing the interfrequency handover to said at least two base stations.

In a similar field of endeavor, Wakizaka discloses the mobile station synchronizes itself to a common frequency and sends a second handoff request that all base stations receive (see column 3, lines 9-54), which reads on the claimed, "performing the interfrequency handover to

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Hamalainen with Wakizaka to include the above synchronization in order to minimize errors and the need for retransmission.

Regarding **claim 26**, Hamalainen fails to expressly disclose synchronizing the mobile station with at least one base station before selection of a target frequency and/or the target base stations for the interfrequency handover.

In a similar field of endeavor, Wakizaka discloses when the field of strength of the pilot signal from this base station drops below the threshold level, the mobile station transmits a handoff request message to the base station, then synchronizes to the common frequency and sends a second handoff request message to a number of base stations (see column 3, lines 9-54), which reads on the claimed, "means for synchronizing the mobile station with a base station, said means arranged to perform the synchronization during the combined slotted communication and measurement

mode before selection of a target frequency and/or a target base station for an interfrequency handover."

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Hamalainen with Wakizaka to include the above synchronization in order to minimize errors and the need for retransmission.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamalainen in view of Subrahamanya (US006807429B2).

Regarding **claim 23**, Hamalainen fails to disclose the loop based power control manner is adapted to control the quality of the connection by setting the target value for an inner loop of a closed loop power control.

In a similar field of endeavor, Subrahamanya discloses a target signal-to-total-noise-plus-interference ratio in an inner loop (see column 4, lines 4-54), which reads on the claimed, "the loop based power control manner is adapted to control the quality of the connection by setting the target value for an inner loop of a closed loop power control."

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Hamalainen with Subrahamanya to include the above target signal-to-total-noise-plus-interference ratio in order to minimize interference and increase system capacity on the reverse link as suggested by Subrahamanya (see column 4, lines 4-15).

Response to Arguments

Applicant's arguments filed January 3, 2006 have been fully considered but they are not persuasive.

The Applicant argues Hamalainen fails to teach a first target value depending on a second target value is related to an outer loop power control of a transmission power of a transmission power of the downlink signal. The Examiner respectfully disagrees. As recited in the rejection above, Hamalainen discloses a system where a criteria for a mobile station triggers the employment of a slotted mode and measurements on neighboring base stations includes the base station seems to be not responding to power control commands asking for more downlink power and the serving base station repeatedly asks for more uplink power but the mobile already uses the maximal allowed uplink power (see page 7, line 12 – page 8, line 12), or interference is high, or higher than an estimated value (see page 10, line 26 – page 11, line 8), wherein interference is related to an outer loop power control of a transmission power of the down link signal and the target values reflect the fact that it is higher than normal.

The Applicant makes similar arguments with respect to the remainder of the claims, however, for the same reasons outlined above, the Examiner respectfully disagrees.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan J. Fox whose telephone number is (571) 272-7908. The examiner can normally be reached on Monday through Friday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bryan Fox
March 31, 2006

JOSEPH FEILD
SUPERVISORY PATENT EXAMINER